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THE DESIGN OF AN INFORMATION MANAGEMENT PROGRAM FOR HEADQUARTERS--ETC(U)

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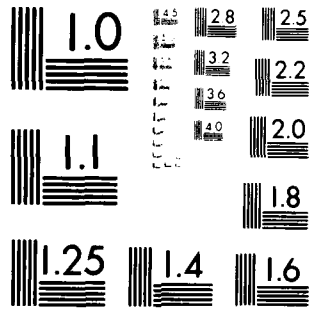
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MANAGEMENT SUMMARY

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MANAGEMENT SUMMARY

Information is a valuable and costly resource of Headquarters, Department of the Army (HQDA). Specifically, information is important to:

- . Effective planning to achieve Army mission goals,
- . Efficient execution of the plans, and
- . Appropriate feedback from the execution into the planning process.

As the major planning and resource management activity for the Department of the Army, HQDA places heavy emphasis on the importance of and need for information. Information inconsistencies, inaccuracies or untimeliness can seriously impact HQDA's ability to achieve its mission. Information is one of the most vital assets which HQDA possesses, and yet HQDA is not effectively managing its information or controlling the costs associated with collecting, processing, storing, or disseminating information.

1. THE PROBLEMS WITH INFORMATION

During the course of studying information management at HQDA, Arthur Young & Company conducted numerous interviews with General Officers, HQDA Management, and Action Officers; reviewed HQDA DPI operations and practices; conducted three specific case studies; and analyzed a sample of fourteen HQDA automated systems. From these activities we have found that:

- . There is a general dissatisfaction with the quality (consistency, accuracy, currency, utility, etc.) of information provided through automated means for HQDA decision-making
- . The costs associated with providing that information are perceived to be high and rapidly increasing, but information costs are not specifically identified nor accounted for as direct cost items
- . There is general confusion over who has what information, who is responsible for the quality and availability of which information, and how to go about sharing information efficiently throughout the HQDA community
- . There is widespread and recurring redundancy of information collection, processing, storage, and dissemination resulting in an increased reporting burden on the Field and HQDA elements and increased overall information costs

- There is real concern and interest throughout HQDA in resolving the problems associated with information and a general attitude that the time is right for positive action in managing HQDA's information resource
- The problems are not limited to information processed by automated means but reflect circumstances common to manual reporting and permanent files as well
- The majority of information which HQDA stores and processes comes from the Army at large through the individual MACOM and installation reporting processes and thus is subject to inconsistencies and incompatibilities with HQDA objectives.

The impacts of these findings are widespread across HQDA. No agency or office is immune. Furthermore, the problems with information impact the fundamental nature of HQDA and its ability to meet its mission. For example, our 5-ton truck case study in the Phase I report pointed out that HQDA's presentation of inconsistent or inaccurate data to Congress can result in embarrassment for the Army, considerable additional work compiling new data, or even a reduction of resource allocations. Similarly, the results of MOBEX 78 indicated that incompatibilities among the information collected and maintained by the various Staff Agencies could adversely impact the Army's readiness to engage in military actions. Further, our Phase I case study of a mobilization inquiry from Congressman Beard demonstrated the substantial degree of resources and time required to respond to such inquiries, due in part to a lack of organization of the information resources of HQDA and the effort required to locate pertinent information.

Individually, these findings and specific instances present a challenge and a source of frustration to the respective Staff Agency Chiefs as they plan Army needs, budget resources, and monitor the progress of Army programs. Collectively, however, the problems of information at HQDA indicate a serious area of vulnerability for the Army and an area where costs are escalating while results, in the form of more effective information, are widely questioned. The top-level concern for addressing the information problems of HQDA across all agencies has been expressed through numerous means, most recently in the Chief of Staff's request for the creation of a consistent data base of the most important HQDA information. The significant difficulties which will be encountered in establishing and maintaining this data base (as have also been encountered in the long-standing PROBE effort of PAED) will not be technical problems of data base design or access but rather information management issues of inconsistent definitions, incompatible representations, and unclear responsibilities for the information to be supplied to support those efforts. The independent development of yet another data base will only serve to identify, but not solve, the information management problems of HQDA.

2. MANAGING THE INFORMATION RESOURCE

There have been numerous efforts and attempts to provide some managerial control over automated information at HQDA. In particular, the Management Information Systems Directorate (MISD) of the late 1960's and early 1970's was established to provide automated systems in response to HQDA information requirements. The need for managerial direction for the totality of Army automation led to the creation of the Army Automation Directorate (AAD) in 1977, and in 1978 the management of automation and communications was combined under the Assistant Chief of Staff for Automation and Communications (ACSAC). The trend in these organizations has been toward the management of automation equipment, the control of the systems design process, and most recently, the creation of a data processing/data communication network to manage the flow of data in automated systems. Concurrent with these efforts have been the activities of the Adjutant General (TAG) in providing policies and support for information collection, processing, storage, and dissemination. In addition, the individual Staff Agencies and Data Processing Installations (DPIs) have established their own local policies and procedures where HQDA policy is not provided.

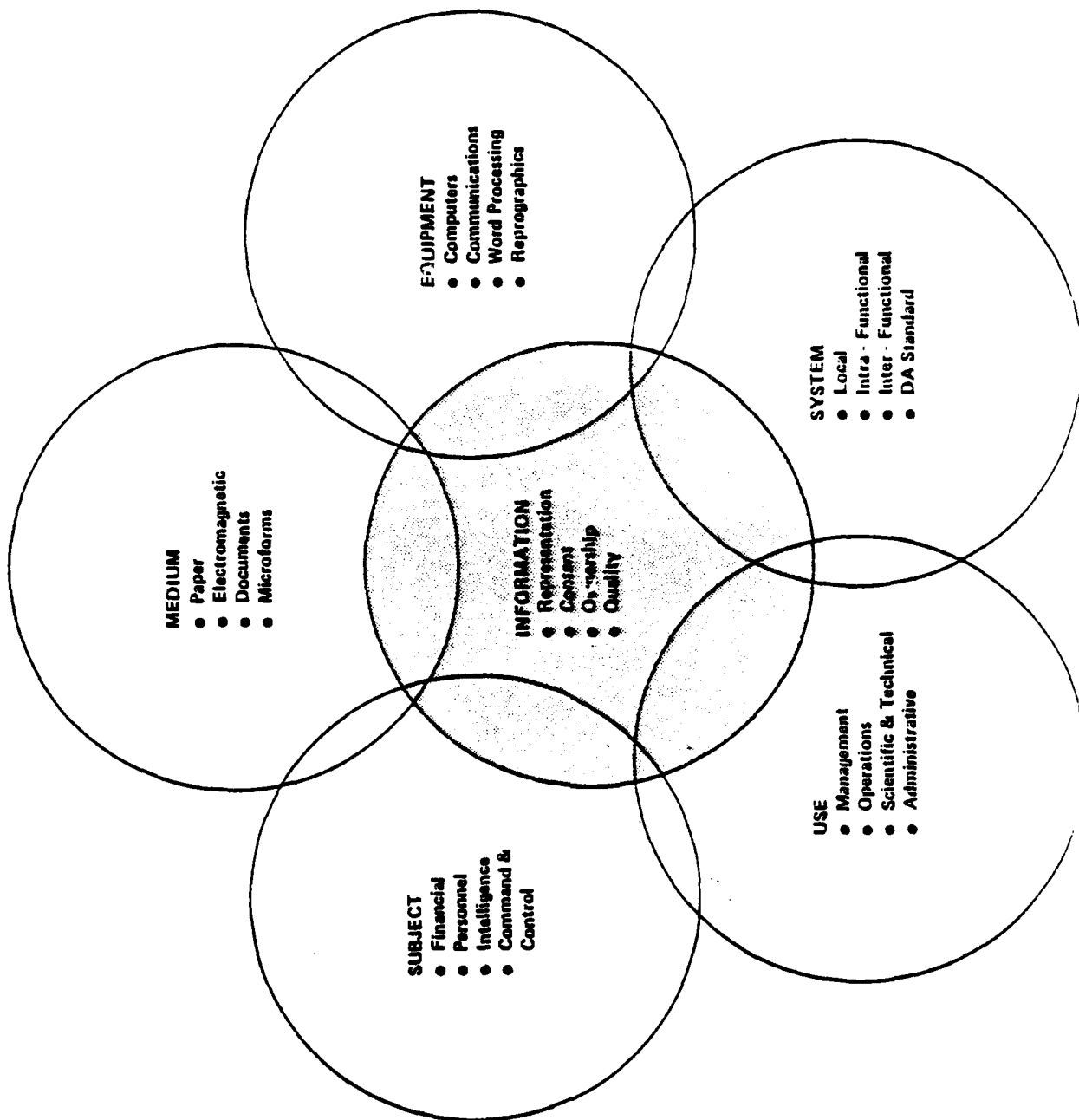
However, these efforts have been and continue to be disjointed. They lack a unifying direction, and are not uniformly supported throughout HQDA. One result is a collection of "stovepipe" information systems, each designed to support a specific user group but which are not collectively effective in terms of system interoperability or information sharing. These efforts only go part of the way toward solving the information problems of HQDA.

Exhibit 1 depicts several approaches to managing information at HQDA. Around the perimeter of the diagram are indicated some of the approaches which HQDA has employed in attempting to address the identified problems. These include attempts to manage: the media on which information is stored, the equipment which is used in processing it, the systems which transform the information for a particular application, the use to which the information will be put, and the subject matter of the information. Each of these managerial focuses are significant and useful in their own right; however, their individual orientations can lead to conflicting priorities and needs and do not solve the basic problem.

The management of information itself (the center circle in the exhibit) cuts across each of these approaches and provides a unifying direction for common functions performed in each of the other areas. The management of information focuses on the characteristics of the information itself (e.g., representation, content, ownership, and quality) irrespective of its storage medium, the manner of its processing, the system which employs it, the use to which it will be put, or the subject with which it deals. In this manner, information is viewed as an organizational resource which is to be managed in its own right for the benefit of HQDA as a whole. This is not to say that

Approaches to Managing HQDA Information

EXHIBIT 1



information should be managed instead of automation, for example, or instead of managing official records, but rather in addition to and in close coordination with those important management processes.

Exhibit 2 presents the concept of viewing information as an organizational resource of HQDA. Four fundamental communities are identified in the diagram: the Suppliers, the Users, the Handlers, and the Managers of the information resource. The subject of information resource management (IRM) identifies the information-related functions and responsibilities of each community. In particular, it focuses on the establishment of the Information Resource Management Community as that collection of people within HQDA responsible for leading the Supplier, User, and Handler Communities in the effective and efficient processing and use of information from a HQDA-wide perspective.

The identification of an Information Resource Management Community as functionally distinct from the Supplier, User, and Handler Communities does not necessarily imply the need to establish a new and separate IRM organization. Indeed, just as the various Staff Agencies are responsible for much of their own information processing and use, so, too, should they be responsible for the management of their information. Hence, the IRM functions and responsibilities would be distributed throughout the HQDA organization.

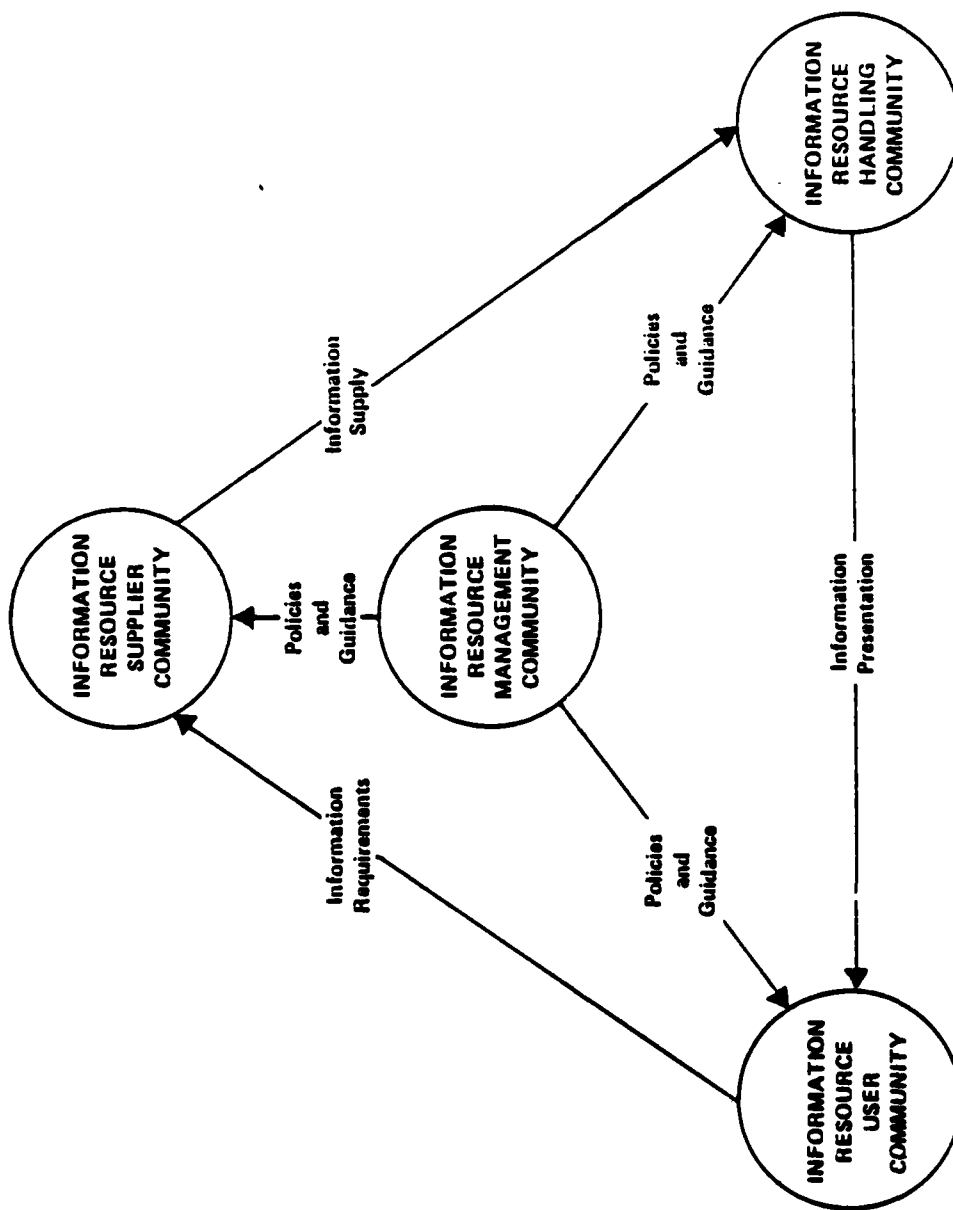
Arthur Young & Company recommends that information resource management be implemented as a formal program within HQDA. This program would be founded upon the principle that information is a valuable and costly resource of HQDA. The principle would be embodied in a set of IRM policies and procedures for automated information at HQDA. The management of this program would require an organizational structure (the Information Resource Management Community) to promulgate the policies, monitor program progress, and coordinate the suppliers, users, and handlers of HQDA's information. The details of this program are summarized in the study recommendations presented in Section 4.

3. BENEFITS OF MANAGING INFORMATION AS A RESOURCE

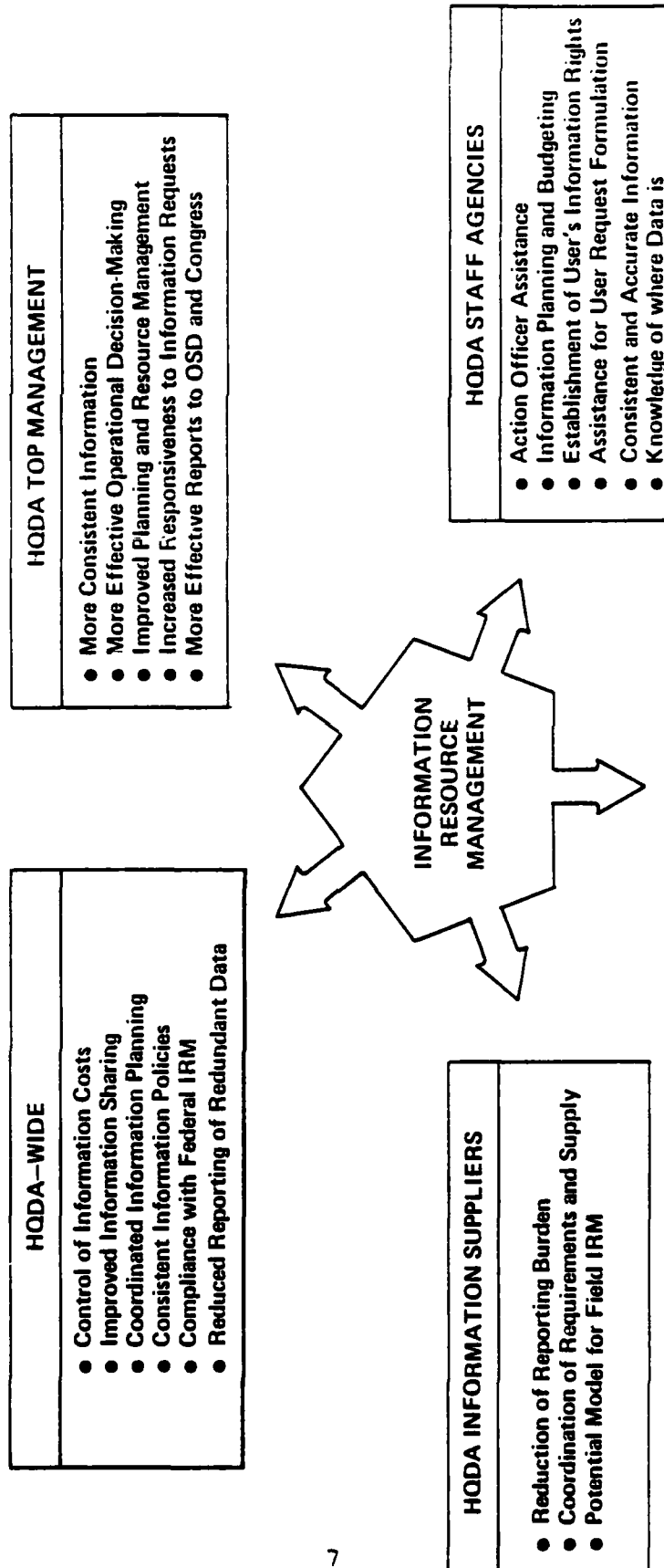
Managing information as a resource will accrue benefits both for HQDA as a whole as well as for the individual Staff Agencies. Some of these benefits may be realized in the near-term as decision aids are constructed and information improvements are put into effect. Many of the benefits, however, will be of a longer-term nature as the life cycle costs of information and information systems development are reduced. The total impact of following the IRM approach must be considered in assessing the desirability of establishing an IRM program for HQDA. Some of the expected benefits of information resource management are summarized in Exhibit 3 and discussed briefly below.

The Information Resource Communities

EXHIBIT 2



Benefits of Information Resource Management



HQDA DPIs
<ul style="list-style-type: none"> • More Cost-Effective Information Systems • Increased Support for Data Standards • Support for Distributed Processing • Progress Toward Organizational Maturity • Consistent and Accurate Data when Shared with Other HQDA DIPs

- (1) IRM will benefit HQDA top management by facilitating the process of maintaining consistent information for more effective operational decision-making, improved planning and resource management, increased responsiveness to requests for information, and more effective reports to OSD and Congress.

The management of information as a resource focuses on the establishment and use of policies, procedures, tools, and responsibilities designed to coordinate the production of information across various Staff Agencies and information systems. This coordination addresses the assignment of responsibilities for the content and quality of information as well as its availability and timeliness. As a result, the Army Staff will be able to achieve more effective operational decision-making, improved resource planning and management, and more timely and coordinated reports and answers to external requests. Critical HQDA decisions typically require the integration of information from several sources or information systems. Managing information as a resource will facilitate this integration by coordinating the information handling process in advance, rather than after the request is received.

These benefits will impact most of the areas of HQDA's activity and provide improved support to top-level decision makers in the Staff Agencies and OCSA. More compatible information will enhance operational activities, such as deployment exercises, through the coordination of information needs and supply. It will also provide more reliable information for resource management, as during the preparation of the POM, by establishing common definitions and reporting categories. The flexibility provided by managing information, as opposed to managing systems, can contribute to improved responsiveness through the support of "what if" drills, e.g., in measuring the impact of a 10% reduction in troop strength. Finally, the information which the Army Staff presents to OSD and Congress is crucial to their decisions about resource allocations as well as their perception of the Army's image. Coordinated, consistent information can assist the Army at critical moments in defending its budget requests and explaining its programs, as in the case of 5-ton trucks within the tactical wheeled vehicle program.

- (2) IRM will benefit the suppliers of information in the field and within HQDA by reducing the reporting burden, coordinating the user's requirements for information with the supplier's own needs, and providing a model program for information resource management in the field.

Providing information to the Army Staff is a costly activity both for the Army at large as well as for the Staff itself. The

identification and coordination of the information requirements of the HQDA Staff Agencies can effectively reduce the reporting burden on the field by consolidating information reporting channels. With proper planning, the field commanders can report specific information to a particular designated agency, and the other agencies can obtain the information they need from that proponent. Information which can be provided to a requestor as part of the normal reporting process will have much less adverse impact on the supplier than requests for information to be collected or aggregated in some unique way. Through planning and accounting for information costs, the Staff Agencies would become more aware of the reporting burden which their requests for information impose on the field and other Agencies. The establishment of effective chargeback schemes for information will contribute to shifting some of the responsibility for information costs from the suppliers and handlers to the users themselves.

The impact of these benefits will be improved information exchange between the field and HQDA with more effective information and less waste. The IRM concept may also be directly useful to the Army in the field. The establishment of a HQDA IRM program can serve as a model for the MACOMs and other Army components as they strive to address their specific information problems. The lessons learned by HQDA in establishing and operating its IRM program undoubtedly would be of benefit to the rest of the Army.

- (3) IRM will benefit HQDA's individual Staff Agencies by helping Staff Action Officers to locate and assemble information, encouraging Staff Agencies to plan their information needs and budgets, establishing user's rights to information, and assisting users in formulating their requests.

Information resource management is a way of doing business within as well as among the HQDA Staff Agencies. IRM can help Action Officers complete their data collection activities more rapidly by providing information locators, data dictionaries, and data bases about the information available. The resultant time savings can free the Action Officer to devote more time to analytical (as opposed to clerical) activities. It can also contribute to reducing the presently long learning process required for an Action Officer to become truly effective in HQDA. Further, the analytical process can be facilitated through the availability of important context data about the information which contributes to its proper understanding and use.

The identification of and budgeting for information costs can assist Staff Agency managers in improving the management of their information collection and processing activities by providing a mechanism for a cost/value trade-off analysis. The information planning process identifies information needs and

establishes specific responsibilities for information users, handlers, and suppliers. Thus, by being more aware of the costs and difficulties involved with meeting users' information requirements, the users themselves can become more adept at expressing their requirements in more cost-effective ways.

The impact of these benefits on the individual Staff Agencies will include more rapid (and less costly) Staff Actions, such as responding to Congressman Beard's inquiry on mobilization, more rapid learning times for Action Officer training (as compared to the 18 months estimated to be required in some areas), and more direct involvement of information users in long range planning of information requirements (with explicit recognition of commitments to supply and maintain the needed information). The distributed approach to information resource management recognizes the importance of each Staff Agency managing its own information for its own needs, but it also recognizes the need for cooperation and coordination among the Staff Agencies for their mutual benefit.

- (4) IRM will benefit the HQDA DPIs through developing more cost-effective information systems, facilitating the application of data standards, supporting the transition toward distributed processing, and contributing to the DPIs' progress toward organizational maturity.

An information resource management program can assist the cost-effective development of information systems by establishing stable definitions for information, identifying alternative sources of information which may preclude the need for a new system, providing a framework for the identification and verification of information system requirements, attracting more user and management attention to the vital role of data standards, and supporting the transition toward distributed processing by focusing on the information which is to be processed. The results can include reduced duplication of information and system development effort, reduced demand for computer resources to process essentially the same data, a reduction in system redesign costs as changes occur in the system requirements, and greater system interoperability and information interchange.

HQDA, as an organization, is progressing through Nolan's six stages of ADP growth (Harvard Business Review, March/April, 1979). While Dr. Nolan contends that each stage (initiation, contagion, control, integration, data administration, and maturity) may be necessary in an organization's growth, the impacts and mistakes of the early stages can be reduced through effective management of the growth process. Individual DPIs at HQDA may be considered to be in different stages of ADP growth, but the establishment of a HQDA IRM program can contribute significantly toward the growth and maturity of each DPI as well as the maturity of HQDA as a whole.

- (5) IRM will benefit HQDA as a whole through identifying information costs, facilitating information sharing, coordinating information plans, promulgating consistent information policies, and complying with Federal IRM initiatives.

The explicit identification of the costs associated with acquiring, processing, transmitting, storing, and presenting information and the establishment of accountability for incurring such costs will assist in overall cost control and reduction. Information sharing among the Staff Agencies, through the identification of information inventories, the establishment of information locators, and the coordination of information requirements, collection processes, and representation, will result in reduced costs, more consistent answers, and information synergy among the Staff Agencies. The development of individual Staff Agency information plans and their consolidation into a coordinated information plan for HQDA will assist in the identification of information requirements, potential sharing opportunities, information shortfalls, and areas of possible information conflicts. The promulgation of consistent and complementary information policies under an IRM program will reduce the incidence of independent and contradictory policies and, thus, will facilitate agency compliance with those policies.

The IRM program which Arthur Young & Company has developed for HQDA is largely compatible with two current Federal initiatives in information resource management: OMB Circular A-40 and HR-6410. The new OMB Circular A-40 which is now out for review deals with the Federal Reports Act and provides a new, much broader information resource management interpretation. HR-6410 is a bill now pending in Congress entitled the Paperwork Reduction Act of 1980. The clear thrust of this legislation is information resource management and the need for an IRM structure in each Federal Department.

These benefits to HQDA cross functional boundaries and serve to enhance the overall effectiveness of information within and among the Staff Agencies while providing control over the costs. Establishing an IRM process will facilitate the execution of HQDA-wide studies (such as the identification and correlation of HQDA's many management languages) and support the development of large-scale analytic models (such as the Readiness Indicator Model developed at CAA). IRM should reduce the time and resources required to formulate such models or to complete such studies by establishing common definitions, consistent policies, and explicit responsibilities regarding information.

4. STUDY RECOMMENDATIONS

As a result of having studied and analyzed HQDA's automated information environment, Arthur Young & Company has developed the

following recommendations for HQDA regarding the establishment of the process of information resource management. These recommendations are summarized in Exhibit 4.

RECOMMENDATION 1: HQDA should establish as official HQDA policy that information is a valuable and costly resource which will be managed to increase its effectiveness and decrease its cost throughout HQDA.

Information is vital to the functioning of HQDA and essential to the effective planning and control functions of the Army Staff. Without timely, accurate, and consistent information HQDA cannot make effective management decisions, appropriate resource allocations, or adequate operational plans. Collecting, processing, transmitting, storing, and disseminating information is a costly process, but information is often viewed as a "free good" - there for the asking. Controlling the cost of information requires first that such costs be identified and then that the users and handlers of information be held accountable for the costs incurred as a result of their information related activities.

Arthur Young & Company recommends that HQDA formally recognize the cost and value of its information resource through the establishment of official policies to encourage the effective management of that resource. Such policies would constitute a pronouncement of top management's concern in this area and their commitment to positive steps toward establishing the IRM process at HQDA.

RECOMMENDATION 2: HQDA should establish a long-term program for managing its information resource to provide a focus for its information management activities and a unified horizontal view of information across functional boundaries.

The process of managing information as a resource is a managerial philosophy or approach to dealing with information. It is not a short-term solution to a long-standing problem. It entails a new way of thinking about information which must be ingrained in the Army Staff and led by HQDA management. Current disjointed attempts to manage information from individual, relatively narrow perspectives must be coordinated to focus upon the management of information itself (as opposed to managing the medium, equipment, or system used to handle the information) and for the overall benefit of HQDA at large (as opposed to autonomous applications or independent uses). The respective individual focuses must be preserved, but they should be tempered by the net benefit to HQDA as a whole of information sharing and redundancy control.

We recommend that HQDA adopt the IRM approach to managing its information through the establishment of a formal program for IRM. Such a program would bring together current disparate information management programs into a unified direction while providing a

Study Recommendations

- HODA SHOULD ESTABLISH AS OFFICIAL HODA POLICY THAT INFORMATION IS A VALUABLE AND COSTLY RESOURCE WHICH WILL BE MANAGED TO INCREASE ITS EFFECTIVENESS AND DECREASE ITS COST THROUGHOUT HODA
- HODA SHOULD ESTABLISH A LONG-TERM PROGRAM FOR MANAGING ITS INFORMATION RESOURCE TO PROVIDE A FOCUS FOR ITS INFORMATION MANAGEMENT ACTIVITIES AND A UNIFIED HORIZONTAL VIEW OF INFORMATION ACROSS FUNCTIONAL BOUNDARIES
- HODA SHOULD BEGIN, NOW, A COMPREHENSIVE EFFORT TO CREATE A HODA-WIDE AWARENESS FOR IRM AND TO INFORM THE ARMY STAFF OF THE PHILOSOPHY OF, NEED FOR, IMPACT OF, AND BENEFITS TO BE DERIVED FROM THE HODA IRM PROGRAM
- HODA SHOULD ACT QUICKLY TO ESTABLISH AN IRM TASK FORCE TO PREPARE FOR THE IMPLEMENTATION OF THE IRM PROGRAM, TO COORDINATE THE GENERATION OF AN APPROPRIATE CSR FOR IRM, AND TO IDENTIFY NEEDED AND AVAILABLE RESOURCES FOR IRM IMPLEMENTATION
- HODA SHOULD DESIGNATE THE DIRECTOR OF THE ARMY STAFF AS THE OFFICIAL HODA INFORMATION RESOURCE ADMINISTRATOR. AN OFFICE OF INFORMATION RESOURCE MANAGEMENT (OIRM) SHOULD BE ESTABLISHED IN WHICH AN IRM PROGRAM MANAGER WOULD BE ASSIGNED RESPONSIBILITY TO COORDINATE AND MANAGE THE OVERALL HODA IRM PROGRAM

Study Recommendations

- HQDA SHOULD ESTABLISH AN IRM STEERING COMMITTEE AS A NEW SUB-COMMITTEE OF THE SELCOM TO PROVIDE A FOCUS ON INFORMATION MANAGEMENT AND TO MONITOR AND DIRECT THE IRM PROGRAM
- HQDA SHOULD DISTRIBUTE THE RESPONSIBILITY FOR MANAGING THE INDIVIDUAL IRM FUNCTIONAL PROGRAMS AMONG THE OIRM, ACSAC, TAG, AND IG WITH EXPLICIT RESPONSIBILITIES FOR EXECUTING THE PROGRAMS ASSIGNED TO THE VARIOUS STAFF AGENCIES, DPIS, AND FIELD OPERATING AGENCIES
- HQDA SHOULD USE ITS AUTOMATED INFORMATION AS THE INITIAL FOCUS OF THE IRM PROGRAM, BUT HQDA SHOULD CONTINUE CONCURRENT CONSIDERATION OF THE FEASIBILITY AND DESIRABILITY OF EXTENDING THE SCOPE OF THE PROGRAM TO INCLUDE NON-AUTOMATED INFORMATION AND DA INFORMATION EXTERNAL TO HQDA AS WELL
- HQDA SHOULD FOLLOW AN EVOLUTIONARY APPROACH TO IMPLEMENTING IRM AND SHOULD PROCEED IN INCREMENTAL STEPS WHICH ALLOW FOR REASSESSMENT AND REDIRECTION OF THE PROGRAM AS IT MATURES
- HQDA SHOULD BEGIN SOON THE LONG-TERM PROCESS OF IMPLEMENTING TOOLS TO SUPPORT THE IRM PROGRAM AND THE USER, SUPPLIER, AND HANDLER COMMUNITIES THROUGH THE DEVELOPMENT OF AN INFORMATION RESOURCE INFORMATION SYSTEM (IRIS)

management structure for insuring accountability for program success. We believe that the establishment of a HQDA IRM program will have a synergistic effect upon current efforts by insuring coordination and by providing new information management activities not currently in practice.

RECOMMENDATION 3: HQDA should begin, now, a comprehensive effort to create a HQDA-wide awareness for IRM and to inform the Army Staff of the philosophy of, need for, impact of, and benefits to be derived from the HQDA IRM program.

Because the concept of viewing information as an organizational resource is new to most people, there is a definite need to educate the members of the organization as to the implications of the IRM approach. Emphasis should be placed on the applicability of IRM within the individual Staff Agencies to manage their own information as well as the organizational benefits to be derived from information sharing and a coordinated approach. Such an educational process has already begun with the execution of this study, but more must be done to reach those who have not yet been exposed to the concept.

Arthur Young & Company recommends that HQDA begin now to conduct its own internal educational campaign designed to explain IRM and the pending IRM program. Such a campaign can be instituted in conjunction with the staffing of this study report, but its impact should go beyond the task of explaining the report. As the IRM program is established in HQDA the IRM Education Functional Program can be expected to pick up and build upon this initial educational campaign and work toward the training and building of information resource managers for the Army Staff.

RECOMMENDATION 4: HQDA should act quickly to establish an IRM Task Force to prepare for the implementation of the IRM program, to coordinate the generation of an appropriate CSR for IRM, and to identify needed and available resources for IRM implementation.

The implementation of a HQDA IRM program will require an evolutionary approach which is phased over a long period of time. In this study we have formulated the direction for HQDA to go but it remains for HQDA itself to lay the organizational groundwork, set priorities, and assemble resources to implement the program.

We recommend the establishment of an IRM Task Force to carry forward the work done by Arthur Young & Company and the Study Advisory Group. Issues to be addressed by this task force include the establishment of the Office of the IRM Administrator, the formulation of draft HQDA IRM policies, and the identification of sufficient funds and staff for initial program implementation. The staffing of this task force will require quality, experienced people who are knowledgeable in both the IRM concept and the operational structure

of HQDA. Presumably these individuals would be detailed from their current organizations to serve on this task force during the transition period until the IRMA and the IRM Functional Program Managers are established.

RECOMMENDATION 5: HQDA should designate the Director of the Army Staff as the official HQDA Information Resource Management Administrator (IRMA). An Office of Information Resource Management (OIRM) should be established in which an IRM Program Manager would be delegated authority to coordinate and manage the overall HQDA IRM program.

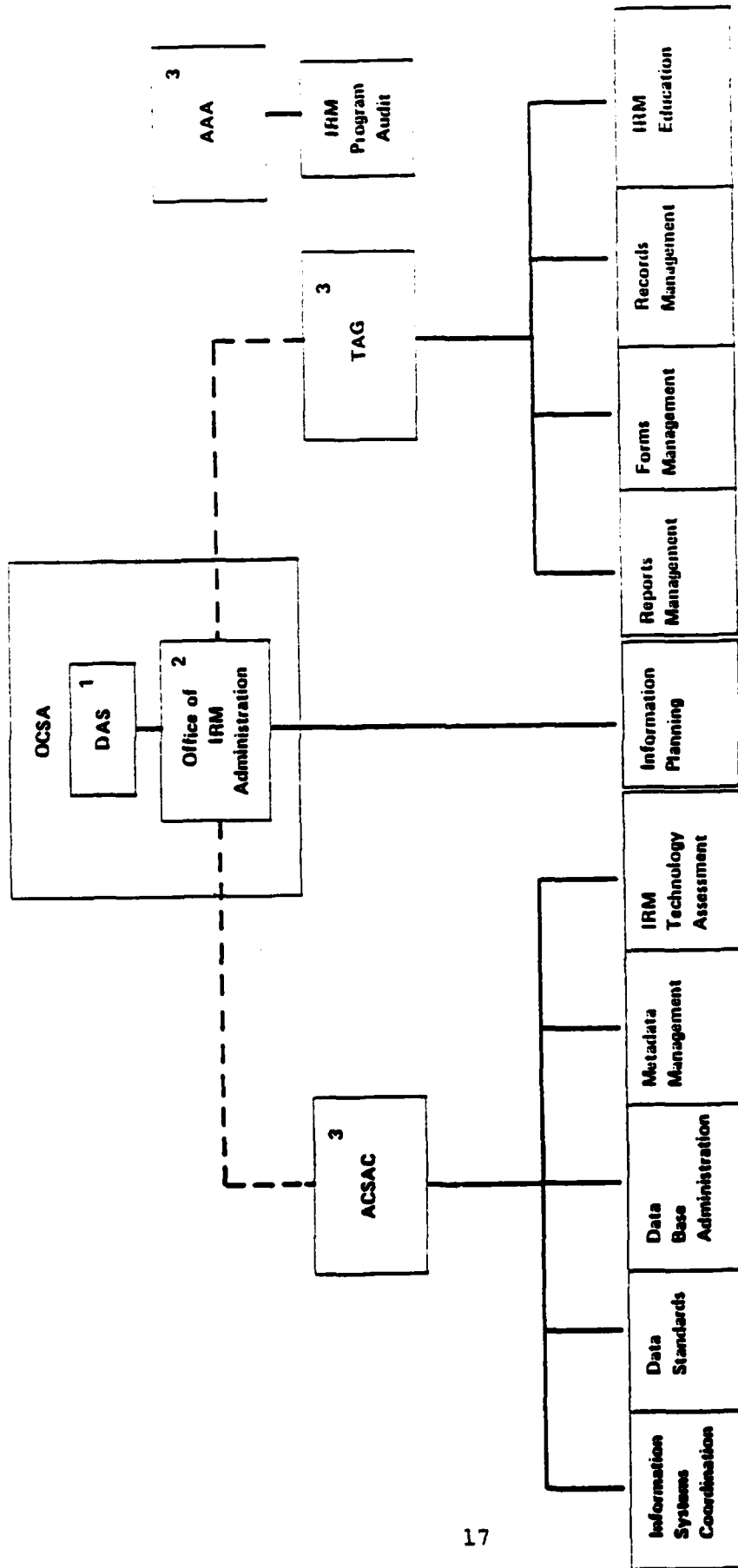
To be a viable program, the IRM program will require an official Information Resource Management Administrator (IRMA) to direct its overall operation. The IRMA (through the IRM Program Manager) will be responsible for arbitrating information disputes among the Staff Agencies, coordinating the policies and activities of the individual IRM functional programs, and providing the focal point for information management activities across HQDA. The IRMA will be responsible for reviewing and defending the HQDA IRM budget, developing a consolidated HQDA information plan, and monitoring overall progress toward HQDA IRM goals.

Arthur Young & Company recommends that HQDA establish the position of Information Resource Management Administrator within the Office of the Chief of Staff to provide adequate visibility and authority for this new and important position. The DAS should be designated the IRMA and an IRM Program Manager should be designated, reporting directly to the DAS, to insure an information management focus unobscured by other duties and responsibilities or functional interests. This placement is seen to be in keeping with the established role of OCSA as an arbitrator among the Staff, the need for high-level visibility and authority for the emerging program, and the establishment of an organization whose primary focus is information resource management for HQDA. It should be noted that this recommended placement is for the initial program with its limited scope of automated information at HQDA. Extension of the scope or expansion of the role of the IRMA will require further study and analysis and may result in the migration of the office to some other organizational position. Exhibit 5 presents the recommended placement of the IRMA.

RECOMMENDATION 6: HQDA should establish an IRM Steering Committee as a new sub-committee of the SELCOM to provide a focus on information management and to monitor and direct the HQDA IRM Program.

The HQDA IRM Steering Committee will provide a forum for the Information Supplier, User, and Handler Communities to monitor and provide feedback and direction to the Information Management Community. The Steering Committee will suggest new or revised IRM policy areas, propose areas for study and research, and provide a framework for

HQDA IRM Program Organization



1) The DAS is Appointed the Official HQDA Information Resource Management Administrator.

2) The IRM Program is Managed by an IRM Program Manager Located in the Office of IRM.

3) Selected Staff Agency Heads Are Designated Program Managers for Individual IRM Functional Programs.

surfacing and settling information disputes. In addition, it will provide a mechanism for identifying to the Supplier, User, and Handler Communities the benefits being derived from the HQDA IRM Program.

Arthur Young & Company recommends the establishment of the IRM Steering Committee as a new sub-committee of the SELCOM to provide an unobscured focus on information management and to ensure adequate visibility and authority for its actions. As the parent committee, the SELCOM will be given an oversight responsibility to review the cost-effectiveness of the program, to ensure adequate allocation of resources, to review major issues not resolvable by the IRMA and the Steering Committee, and to assess the need to modify, restructure, or terminate the IRM Program.

RECOMMENDATION 7: HQDA should distribute the responsibility for managing the individual IRM Functional Programs among the OIRM, ACSAC, TAG, and IG with explicit responsibilities for executing the programs assigned to the various Staff Agencies, DPIs, and Field Operating Agencies.

We have identified ten IRM Functional Programs which are needed to support the HQDA IRM Program. Five of these ten are already present in the form of DA programs. The HQDA IRM program will build upon (not replace) these ongoing activities. HQDA Functional Program Managers will be required to develop functional program plans and budgets, to monitor and guide functional program implementation, and to establish and promulgate functional program policies. Under the distributed approach to information resource management all of the functional programs will not be centralized in a single agency under one managerial control.

We recommend that the assignment of program management responsibilities for the various IRM Functional Programs be as shown in Exhibit 5. We believe that this allocation of responsibilities is commensurate with current information management activities and provides proper focus for the required new activities. It must be emphasized, however, that all of the functional programs will require close coordination, and the individual Functional Program Managers must cooperate with and support one another if the objectives of IRM are to be achieved. To work independently is to continue with the same ineffective approach to information management that HQDA is currently following.

RECOMMENDATION 8: HQDA should use its automated information as the initial focus of the IRM program, but HQDA should continue concurrent consideration of the feasibility and desirability of extending the scope of the program to include non-automated information and DA information external to HQDA as well.

Our study has been focused on automated information at HQDA and its supporting DPIs. Such a limitation was convenient to provide bounds to the study, thereby permitting the study to occur within reasonable resource constraints. As a result, our recommendations are focused on managing automated information as a resource of HQDA. This limited scope is sufficiently broad to permit an effective program which can provide substantial benefits to HQDA in the near term.

In the long term, there are additional benefits to be derived by HQDA from managing all of its information as a resource and even further gains to be made by the Army in applying the IRM philosophy to DA information flows and holdings. We have attempted to include in our design of the HQDA IRM program for automated information sufficient flexibility for future extensions of scope should HQDA deem that desirable. We recommend that HQDA pursue the exploration of the impact of possible extensions of scope concurrently with its proceeding to establish a HQDA IRM program for automated information. Failure to consider such extensions risks the loss of potentially substantial benefits since the majority of information employed by HQDA is obtained from DA sources and appears in a variety of non-automated forms (such as reports, memos, documents, forms, or books). On the other hand, delay in initiating a HQDA IRM program pending a study of the feasibility of expanding the scope risks losing the current momentum for IRM already present among the Army Staff and encountering early resistance in some components of the Army to a HQDA-initiated IRM concept. The initial program of managing automated information as a HQDA resource could serve as a model and an organizational learning experience as the Army addresses the concept of information resource management.

RECOMMENDATION 9: HQDA should follow an evolutionary approach to implementing IRM and should proceed in incremental steps which allow for reassessment and redirection of the program as it matures.

Information resource management is a basic approach to organizing and managing any enterprise such as HQDA. As with other basic resource management approaches (e.g., personnel management or financial management) the introduction of such a fundamental philosophy cannot be accomplished immediately. A gradual process of personnel education, organizational learning, model development, prototype testing, and early demonstration of benefits will be required before a complete shift to IRM can take place.

We recommend that HQDA adopt an evolutionary approach to implementing IRM which focuses on incremental steps - large enough to be significant but small enough to control - so that the program can grow and adapt. Further, the program will be built upon the existing base of HQDA's current organizational structure and automated systems. Care must be taken to insure a cost-effective transition which permits the continued use of HQDA's vast investment in software and automated systems while focusing the direction of new developments along the

information resource management approach. Finally, the development of the HQDA IRM program will be gradual to allow for redirection of the program as the environment changes. The program must be flexible to allow for change as HQDA matures in its understanding of what is needed to manage its information resource.

RECOMMENDATION 10: HQDA should begin soon the long-term process of implementing tools to support the IRM program and the Supplier, User, and Handler Communities through the development of an Information Resource Information System (IRIS).

A central aspect of managing any commodity as a resource is having available sufficient information about that commodity (information regarding its quantity, quality, location, availability, use, responsible individuals, etc.). Thus, for managing money there is financial information, and for managing people there is personnel information. With the information resource there is also the need for information about information (generally termed metadata - data about data). This metadata is not only useful to information resource managers in describing what it is they are managing, but it is also useful to the users and handlers of information in describing what it is they are handling or have available for their use.

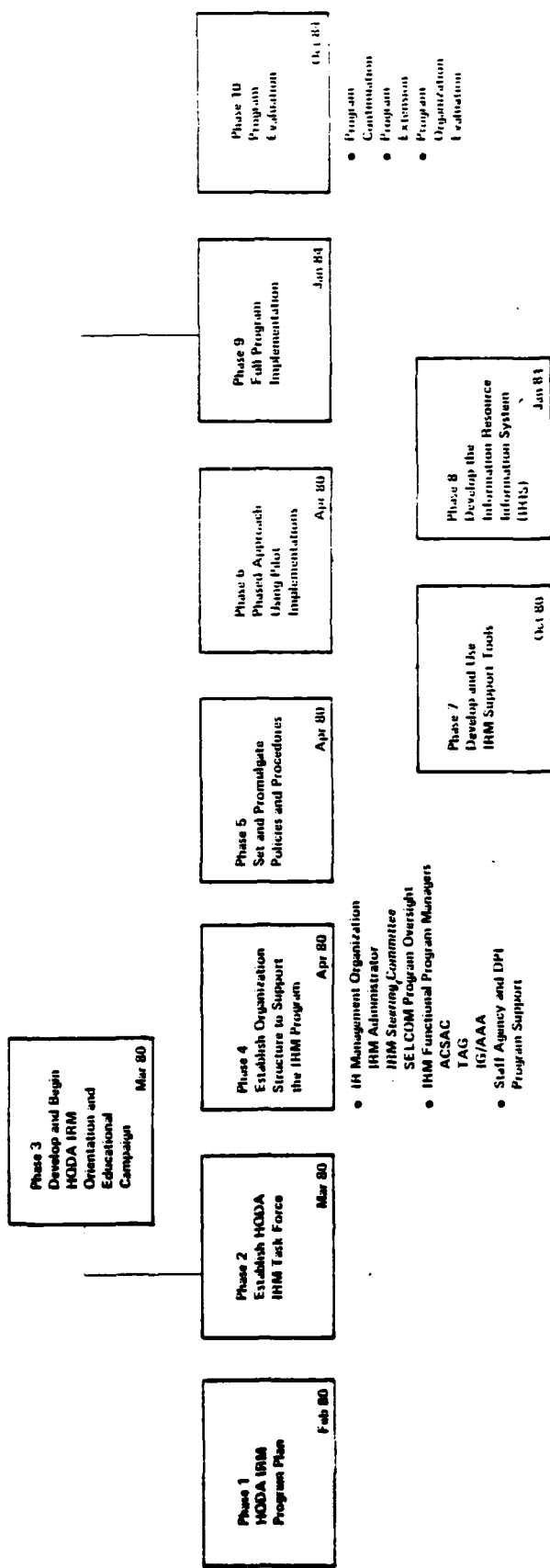
Arthur Young & Company recommends that HQDA begin early in the process of instituting an IRM program the development of the necessary tools (metadata data bases, dictionaries, directories, forms inventories, records data bases, reports inventories, etc.) to support that program. It should be noted that these tools, while developed for specific IRM applications (Staff Agency dictionaries, for example), must not be developed independently of each other. The synergistic power that can come from these tools will arise from their compatibility with each other; hence, there is the need for a coordinated approach to tool development: the Information Resource Information System.

5. IMPLEMENTATION PLAN

Exhibit 6 presents the steps necessary to implement information resource management within HQDA. The magnitude of the potential impact of the HQDA IRM program necessitates a phased approach over a 5-year period. This phased approach allows for an early recognition of the need to manage information as a resource and a gradual commitment to the establishment of an IRM program in HQDA. The implementation plan thus contains a built-in mechanism for organizational learning as HQDA determines what is needed and what is feasible in managing its information resource.

Implementing the HQDA IRM program will require the allocation of resources to staff the Office of the IRM Administrator, to manage the individual IRM functional programs, and to administer the IRM program in the various Staff Agencies and DPIs. Several of the IRM functions

HQDA Information Resource Management Program Implementation Plan Overview



are already being performed, in part, under established but uncoordinated DA programs. The HQDA IRM program can build upon these activities and the resources which have already been devoted to these areas. In other areas, however, no such pre-established program exists and new resources will be required. These resources may be recovered, in part, through reallocations made possible by the savings incurred as a result of the HQDA IRM program. These savings will necessarily be of a long-term nature, and thus, getting the program started will require an initial investment of resources. The implementation plan has been structured to keep this initial investment as small as possible.

The number of man years of effort estimated to implement the IRM program is shown in Exhibit 7. The estimates are not new position requirements; rather, they are figures based upon estimated man years of effort HQDA will need to commit to implement the IRM program as defined in the study. Since many individuals throughout the Staff Agencies and DPIs perform IRM related functions, their efforts can be categorized as existing resources that could be redirected to support the IRM program. Each Staff Agency and DPI will need to quantify these existing levels of effort before determining the amount of new resources required for program implementation. We believe the new resource requirements will be minor when compared to the total resource investment HQDA makes annually in funding its current automated information handling activities.

The impact of implementing IRM upon the individual Staff Agencies is difficult to summarize. It depends to a large extent upon the degree of progress each agency has made in managing its current information resources. To aid the agencies in planning and organizing for IRM, a model organizational structure has been developed. The model is shown in Exhibit 8.

Selected IRM tools, referred to previously, must be developed to support the IRM program. Resources will be required to develop these tools and to develop the Information Resource Information System (IRIS). Additional impact studies may also be necessary to support program implementation. Exhibit 9 summarizes the resource dollars HQDA should plan to commit to support these tool development and study efforts.

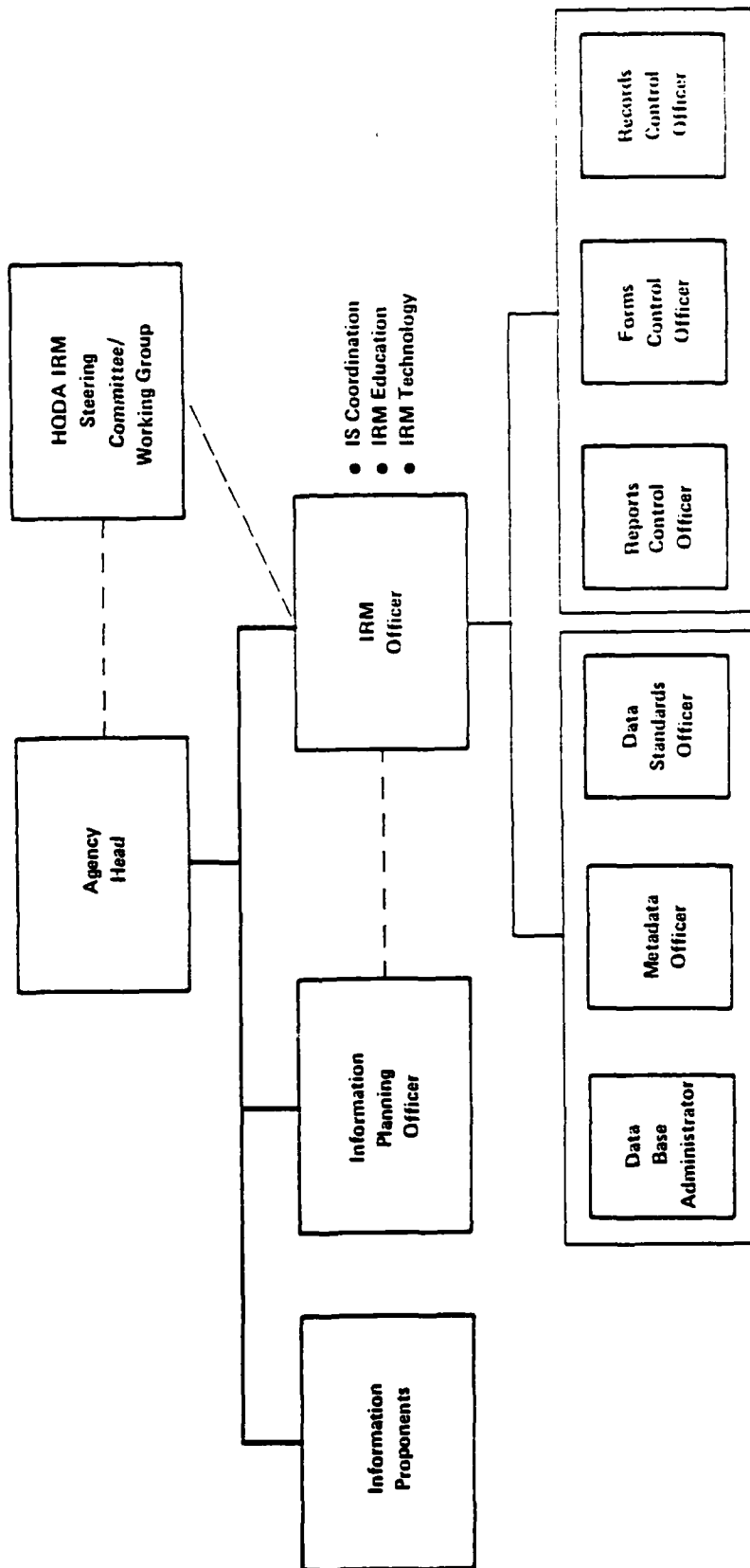
In keeping with the recommended incremental evolutionary approach, an initial pilot IRM program can be established to serve as a prototype to test the feasibility of the IRM concept. Such a prototype will require sufficient resources, high visibility, and a broad perspective to serve as a valid test of information resource management. The CSA Data Base (the "Red Book") and the PROBE system development effort are two possible candidate areas for an initial IRM test environment. Another candidate area concerns the current efforts of the Comptroller of the Army to develop a uniform management language for all resource management systems Army-wide. Any or all of these projects could benefit from an IRM approach while serving as

HQDA IRM Program Resource Requirements

Estimated Man Years of Effort Per Fiscal Year

AREAS OF IMPACT		FY 81	FY 82	FY 83	FY 84	FY 85	FY 86
Formalize IRM Management Community	OIRM	5	10	11	12	12	12
	ACSAC	7	10	12	13	13	13
	TAG	5	6	9	11	11	11
	IG/AAA	2	3	4	4	4	4
	Total	19	29	36	40	40	40
Implement IRM in Staff Agencies by Designating IRM Principals	Staff Agencies	16	24	32	36	40	40
Implement IRM in DPI's by Designating IRM Principals	HQDA DPI's	13	19	26	30	32	32
Total Man Years of Effort		48	72	94	106	112	112

Possible IRM Functional Model for HQDA Staff Agencies



HQDA IRM Program Resource Requirements

Estimated Support Costs (\$ 000's)

ACTIVITY	FY 80	FY 81	FY 82	FY 83	FY 84	FY 85	FY 86
Assist HQDA in Detailed Policy & Procedure Documentation	50						
Assist HQDA in IRM Educational Campaign	50	50					
Develop and Implement Pilot Projects; Conduct Further Studies	125	250	500	250	250	250	100
Develop and Implement IRM Support Tools		200	500	750	500	500	200
Develop and Implement the Information Resource Information System (IRIS)		150	250	500	250	250	100
Total Estimated Support Costs	225	650	1,250	1,500	1,000	1,000	400

a good test of the IRM tools and concepts. The recommended IRM Task Force can provide the impetus and direction for conducting such a pilot study.

In the course of performing this study Arthur Young & Company has been able to introduce the concept of information resource management and to develop a plan for implementing IRM at HQDA. We recognize the ongoing requirement to restrict the size of the Army Staff and the concerns which HQDA will have about staffing a new IRM program. As a result, we have carefully designed the IRM program to build upon existing HQDA and DA efforts in the information management arena so that new staff resource requirements can be kept to a minimum.

The implementation of an IRM program will also require substantial additional study, design, and development. To assist HQDA in planning for these activities we have identified several areas which require additional study or development:

- . Study the need for and feasibility of expanding the scope of IRM to include non-automated information
- . Study the impact of extending the scope of the HQDA IRM program for automated information to the Army at large
- . Design and develop the HQDA Information Resource Information System and its component metadata management tools (such as dictionaries, directories, locators, inventories, and standards)
- . Develop an information planning methodology to be employed by HQDA and its Staff Agencies to include standards for information requirements specification and guidelines for information planning
- . Develop a methodology and associated coding structure for accumulating the costs of information in HQDA (e.g., identifying, categorizing, aggregating, and attributing information costs) that incorporates the results of related ongoing projects, such as the development of the new AMS architecture in COA.
- . Implement a pilot IRM program in a functional Staff Agency (such as COA) or in conjunction with ongoing inter-Agency projects such as the CSA data base or the current PROBE effort
- . Develop official IRM policy statements and relevant Army Regulations both for the overall HQDA IRM program as well as for the individual IRM functional programs
- . Conduct a continued and expanded HQDA-wide IRM educational campaign and the administration of specific training in such

areas as data base administration, data base management, information requirements specification, and information planning

- Conduct continued research in information resource management and the application of IRM technology to the HQDA environment.

In addition to assigning IRM responsibilities to current members of the Army Staff, HQDA has available to it the use of contractor support to assist in implementing the program. HQDA, through the recommended Task Force, will need to prioritize, budget, coordinate, and assign responsibilities for monitoring these potential contractual efforts. The integration of these individual efforts into a cohesive HQDA IRM program is another area where an overall integrating contractor could be employed.

Information resource management is an idea whose time has come at HQDA. While there may be different interpretations of what the term information resource management means and what functions are to be encompassed by an IRM program, the clear signals from Government and Industry alike (through legislation, directives, product-lines, systems, and the literature) are that viewing information as an organizational resource is the proper course of action and the inevitable trend. Arthur Young & Company has designed an IRM program which is tailored to HQDA's needs and environment but which is flexible enough to permit alteration and growth. We believe that this program will provide a sound approach for managing HQDA's information resources.

In this summary we have cited some of the problems with information at HQDA and discussed some of the benefits of information resource management. Earlier attempts to manage information at HQDA have been thwarted by the overpowering need to manage information media, equipment, and systems, with their visible and substantial costs. These efforts tended to focus on filling some important management void and then attempting to manage information from that singular perspective. Now, because such vital management processes are in place, HQDA can return its focus to the management of information across systems, equipment, media, or applications. HQDA now can begin the process of managing its information as a resource.

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